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| <b>TO:</b>      | <b>CHAIR AND MEMBERS<br/>CIVIC WORKS COMMITTEE<br/>MEETING ON JUNE 18, 2019</b>   |
| <b>FROM:</b>    | <b>KELLY SCHERR, P.ENG., MBA, FEC<br/>MANAGING DIRECTOR, ENVIRONMENTAL AND ENGINEERING<br/>SERVICES AND CITY ENGINEER</b> |
| <b>SUBJECT:</b> | <b>SINGLE SOURCE PROCUREMENT- GREENWAY REHEATER</b>   |

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| <b>RECOMMENDATION</b> |
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That on the recommendation of the Managing Director of Environmental and Engineering Services and City Engineer, the following actions **BE TAKEN** with respect to the procurement of a replacement re-heater at the Greenway Wastewater Treatment Plant:

- a) approval hereby **BE GIVEN** to enter into negotiations for the single source purchase of new re-heater heat exchanger from Arvos Schmidtsche-Schack LLC;
- b) the approval given herein **BE CONDITIONAL** upon the Corporation negotiating satisfactory prices, terms and conditions with Arvos Schmidtsche-Schack LLC, to the satisfaction of the Managing Director, Environmental and Engineering Services and City Engineer, it being noted that there may not be sufficient time to adhere to the normal Committee and Council contract approval process due to escalating steel commodity prices resulting in limited price guarantees; and,
- c) the approval hereby **BE CONDITIONAL** upon the Corporation entering into a formal contract or issuing a purchase order relating to the subject matter of this approval.

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| <b>PREVIOUS REPORTS PERTINENT TO THIS MATTER</b> |
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Civic Works Committee, May 14, 2019, Item 6 – Greenway Wastewater Treatment Plant Organic Rankine Cycle Equipment Installation Budget Allocation

Civic Works Committee, May 26, 2014, Item 6 – Single Source Purchase of Pre-Heater Heat Exchanger and Re-Heater Heat Exchanger at Greenway Wastewater Treatment Centre.

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| <b>2019-23 STRATEGIC PLAN</b> |
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This project supports the Strategic Plan with respect to Building a Sustainable City- Robust Infrastructure.

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| <b>BACKGROUND</b> |
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**Purpose**

This report seeks approval to procure equipment through negotiations and in accordance with Section 14.4 (e) of the Procurement of Goods and Services Policy as a single source since the required goods are to be supplied by a particular supplier having special knowledge and experience.

**Context**

The re-heater is a critical component of the incineration process at Greenway Wastewater Treatment Plant. The re-heater is the final step in the incineration process and is used to heat the exhaust air to prevent condensation prior to discharge through the stack (chimney).The re-heater was previously replaced in 2016, but difficult operating conditions have resulted in a shortened service life. With an estimated value of over US\$250,000, Council approval is required prior to issuing a purchase order for this work. Capital budget planning has ensured that money is available for this life-cycle replacement purchase.

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| <b>DISCUSSION</b> |
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**Project History**

The Greenway incinerator was commissioned in 1988 and handles all the sludge generated at London’s wastewater treatment plants. The re-heater is the final heat exchanger in the process and is used to heat the exhaust air to prevent condensation prior to discharge through the stack. Historically the re-heater has been one of the most common points of failure due to the demanding service conditions in which it operates. A failure of the re-heater can ultimately lead to ash plumes exiting the plant stack and can contribute to long-term degradation of the stack itself.

The existing re-heater was purchased in 2014 through a single source contract with Alstom Power Inc. (now doing business as Arvos Schmidtsche-Schack LLC (Arvos)). The re-heater was installed in 2016, and included design features and adaptations that were developed through an iterative design and quotation process with Alstom engineering and sales staff.

Despite the specialized features, the re-heater has recently shown signs of failure. Repairs have been undertaken to enable continued operation of the incineration process, but they are not expected to represent a permanent solution, and replacement in the near future is unavoidable. Wastewater Operations staff have also pursued an assessment with Arvos staff in order to confirm the mechanism of failure to determine if any modifications to the design could provide an extended life.

**Recommended Strategy**

Purchasing a new re-heater allows the majority of new works to be constructed while maintaining the incinerator in operation, resulting in a significant reduction of incinerator downtime. Solids disposal operations at Greenway without the incinerator in operation costs up to \$100,000 per week while the current estimated price from Arvos is US\$250,000, exclusive of duties, taxes and shipping, so this purchase could ultimately result in a net savings for the City.

After the new re-heater is operational in its new position, the existing re-heater can be removed and more thoroughly inspected to confirm the suspected mode of failure. With this confirmed, the existing unit will be rebuilt and retained as a spare, allowing the two re-heater units to be exchanged and rebuilt as part of a preventive maintenance program during planned incinerator shutdowns every two to three years.

**Financial Impact**

The price of US\$250,000 (excluding duties, taxes and shipping) is subject to change with fluctuations in material costs, and installation would be by others at a later date. This price and the request for approval of a single source are based on the provision of

an exact replacement of the existing re-heater by the original equipment manufacturer, so modifications based on the findings of field investigations may also result in a change of price.

As a result, staff are seeking Council approval to negotiate a supply and delivery contract with Arvos, up to an upset limit of the equivalent of \$450,000.00. Funding for a replacement heat exchanger is available in the approved Capital Works Budget Account ES3080 for Greenway Incinerator Refurbishment.

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| <b>CONCLUSIONS</b> |
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The pre-heater is an essential component of the incineration process at Greenway Wastewater Treatment Plant, which processes the sludge removed from every wastewater treatment plant in the City. Purchasing a replacement re-heater from the same manufacturer improves preventive maintenance programs for solids treatment operations and may result in a net savings to the City through reduced costs due to incinerator downtime.

Arvos Schmidstche-Schack LLC is known to staff as a provider of high quality heat exchangers, and the ability to construct a replacement re-heater from the same plans mitigates construction risk and reduces the time required for design. Staff are requesting approval to proceed with the negotiation and execution of a single source purchase order for supply and delivery of a new re-heater to Greenway Wastewater Treatment Plant from Arvos Schmidstche-Schack LLC for up to \$450,000.00.

**Acknowledgements**

This report was prepared with the assistance of Kirby Oudekerk, P.Eng., Wastewater Treatment Operations Division.

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| <b>PREPARED BY:</b>  | <b>REVIEWED BY:</b>  |
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| <b>GEORDIE GAULD<br/>DIVISION MANAGER<br/>WASTEWATER TREATMENT<br/>OPERATIONS</b>  | <b>SCOTT MATHERS, MPA, P.ENG.<br/>DIRECTOR<br/>WATER, WASTEWATER AND<br/>TREATMENT</b> |
| <b>RECOMMENDED BY:</b>   |  |
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| <b>KELLY SCHERR, P.ENG., MBA, FEC<br/>MANAGING DIRECTOR<br/>ENVIRONMENTAL AND ENGINEERING<br/>SERVICES AND CITY ENGINEER</b> |  |

Attachment: Appendix “A” Sources of Financing

cc: Chris Ginty, Procurement Officer  
Jason Davies, Manager III, Financial Planning & Policy  
John Millson, Senior Financial Business Administrator